

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☒Monitoring Well: ☐Piezometer: ☐

Boring/Well Number: B/W-24D

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<b>Boring Location:</b> Just outside the mine on southwest side of the site		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> R. Salois	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 2/12/08	<b>Date Finished:</b> 2/17/08
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 209 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> C. Strauss		<b>Type and Diameter of Well Casing:</b> NA	
		<b>Slot Size:</b> inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
5		SM	<b>Silty Sand (0 - 5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.  Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		SP	<b>Poorly Graded Sand (5 - 11.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					All depths are below land surface unless stated otherwise.  <b>WELL DESIGN for B/W-24D:</b> PVC Stickup: feet Cement - Bentonite Grout: NA feet Bentonite Chips: NA feet No. 60 Silica Sand: NA feet #10-20 Silica Sand Filter Pack: NA feet 2-inch Nominal Schedule 80 PVC Slotted Screen: NA feet Native Collapse: NA feet Additional Bentonite Fill: NA feet
10		SM	<b>Silty Sand with Gravel (11.5 - 12.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~20% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Number of wells at this location: Screen intervals for paired wells are labeled at the installed depths.
		SM	<b>Silty Sand (12.5 - 17.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have no reaction to a weak					

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			reaction to HCl.					
		SP	<b>Poorly Graded Sand (17.5 - 20)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
20		SM	<b>Silty Sand (20 - 25)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~ 15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (25 - 27)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
25		SW-SM	<b>Well-Graded Sand with Silt (27 - 30)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SW	<b>Well-Graded Sand with Gravel (30 - 32.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
30		SM	<b>Silty Sand (32.5 - 34.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35		SM	<b>Silty Sand (34.5 - 40)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
40		SC	<b>Clayey Sand with Gravel (40 - 46)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 40 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
45		SC	<b>Clayey Sand (46 - 51)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
50		SC	<b>Clayey Sand with Gravel (51 - 56)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55								
		SC	<b>Clayey Sand (56 - 67)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Zone has more rocks around 66-67 feet below ground surface.					
60								
65								
		SW	<b>Well-Graded Sand (67 - 71)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Zone is cemented sand or highly weathered rock.					
70								
		SC	<b>Clayey Sand with Gravel (71 - 86)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~20% silt and					

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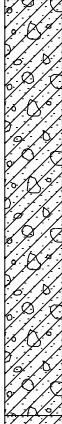
Soil Boring: ☒

Monitoring Well: ☐

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75			clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl. Large rocks, possibly pulverized by drill.					
80								
85								
		SC	<b>Clayey Sand with Gravel (86 - 91)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl. Large clasts from broken rock; very highly weathered.					
90								

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
95		SC	<b>Clayey Sand (91 - 93)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a grey to tan color, and do not react to HCl. Zone also has a small, more clay-rich lense with slight purple color.					
		SW	<b>Well-Graded Sand (93 - 94)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (94 - 98)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SW	<b>Well-Graded Sand (98 - 101)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Zone has same weathered texture as before.					
100		GC	<b>Clayey Gravel (101 - 110)</b> Dry, very dense, no odor. Primarily gravel to 25 mm with ~30% medium to fine grained sand and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
105								
110								

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
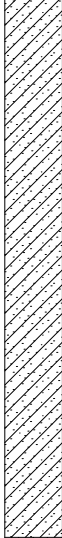


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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115		SC	<b>Clayey Sand with Gravel (110 - 115.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl. Zone has broken and crushed rock with weathered zones.					
		CL	<b>Lean Clay (115.5 - 116)</b> Dry, very dense, no odor. Primarily silt and clay with no gravel and ~5% coarse sand to 2 mm. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
		SC	<b>Clayey Sand (116 - 122.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.					
120								
		SC	<b>Clayey Sand (122.5 - 128)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.					
125								
			<b>Green Rock (128 - 132)</b> Dry, very dense, no odor. Green rock. Highly fractured and broken.					

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130								
		SC	<b>Clayey Sand (132 - 139)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
135								
		SC	<b>Clayey Sand (139 - 152.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
140								
145								



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150								
		SC	<b>Clayey Sand (152.5 - 158)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
155								
			<b>Weathered Granite (158 - 164)</b> Dry, very dense, no odor.					
160								
		CL	<b>Sandy Lean Clay (164 - 164.5)</b> Dry, very dense, no odor. Primarily silt and clay with no coarse sand or gravel and ~50% medium to fine grained sand. The sand is angular to subangular. The fines have low to high plasticity, and do not react to HCl.					
165		SC	<b>Clayey Sand (164.5 - 167.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					

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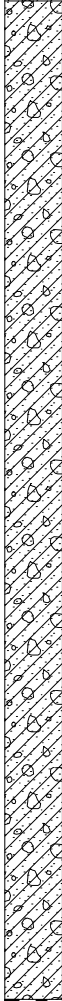

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Monitoring Well: ☐

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170		SC	<b>Clayey Sand with Gravel (167.5 - 173)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
175		SC	<b>Clayey Sand with Gravel (173 - 185)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
180								
185			<b>Rock (185 - 186)</b> Dry, very dense, no odor. Weathered Rock.					
			<b>Clayey Sand (186 - 199)</b>					

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190		SC	Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl. Much of the gravel appears to be rock that has been fractured by the drill.					
195								
200			<b>Rock (199 - 201)</b> Dry, very dense, no odor. Granite clast.					
		SC	<b>Clayey Sand (201 - 204)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
205			<b>Rock (204 - 209)</b> Dry, very dense, no odor. Granite clast.					

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			Bottom of Borehole at 209 feet below ground surface.					